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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/828,416	04/21/2004	Nobuhiro Nakamura	252144US-2 CONT	4529
22850 7590 07/20/2007 OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER GUHARAY, KARABI	
			ART UNIT 2879	PAPER NUMBER
			NOTIFICATION DATE 07/20/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/828,416

Applicant(s)

NAKAMURA, NOBUHIRO

Examiner

Karabi Guharay

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2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on RCE, filed on 4/26/07.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 10-12, 14-28 and 30-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-12, 14-28 and 30-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/26/07 has been entered.

Amendment, filed on 3/26/07 has been considered and entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, 10-12, 14-18 and 21-28, 30-32, 34,37 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagayama (JP 2000-243558), and further in view of Iyama (JP 09-138424).

Regarding claims 1-4, 10-11,14-16, 21,30-32, Nagayama teaches an organic EL (Fig 1-3 & 5) display element comprising a first conductive layer 9, a second a second conductive layer (5), made of transparent ITO, opposed to the first conductive layer 9, a driving current circuit (see paragraph 0003) connecting terminal (15) connected electrically with the first electrode (9) via supplementary wire (16), and an organic EL layer (7) disposed between first and second conductive layer, wherein the

supplementary layer has at least has one surface layer containing Mo alloy (see paragraph 9), where the second conductive layer (5) is made of a same material (ITO) as the driving current circuit connecting terminal (15 is also made of ITO).

But Nagayama is silent about the supplemental wire (16) has a different composition from the remainder of the supplemental wire or supplemental wire comprises at least 3 layers including a layer containing Mo alloy, and a layer of Al or Al alloy formed below the Mo layer.

However, in the same field of display device, Iyama discloses wiring pattern for driving a display having a metal electrode comprising at least 3 layers (17, 18 & 19 of Fig 2f) first and third metal thin film layer made of Mo (17 & 19), a layer (18) of Al or Al alloy (second metal thin film layer) formed below the layer of Mo, on the transparent layer (16). Further Iyama teaches that such type of multilayer wiring extremely lower the occurrence rate of display defect by preventing erosion of transparent and metallic thin film electrode, (see English Abstract).

Thus it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate a Al alloy layer under the Mo alloy layer as the supplemental wire on the transparent layer (15) of the Nagayama's device since this will significantly prevent erosion of transparent electrode and metal thin film.

Regarding claims 5 & 17, Nagayama discloses that the first conductive layer (9) is connected to an etched surface of the layer containing Mo alloy (paragraph 13).

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Regarding claims 6 & 18, Nagayama discloses that a portion of the first conductive layer (9) connected to the layer containing Mo is defined by an insulating film (see paragraph 13).

Regarding claims 12 & 22, Nagayama discloses an organic EL display device and a driving circuit for driving EL element (though circuit is not shown in drawing it is connected to 11 for driving the display).

Regarding claims 23 & 26, Nagayama discloses an organic electroluminescent device comprising several pixels (see Fig 1) having several supplemental wires, however, does not disclose the number of wires, however, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have at least 30 supplemental wires to form a large display.

Regarding claims 24 & 27, Nagayama discloses a passive matrix EL display and discloses that the electrode leading part 11 is made of high melting point metal (paragraph 9), and further teaches in paragraph [0003] that large current is flowing through the conductors via supplemental wire (11) so low resistance material is chosen, thus it is configured to carry a driving current of at least 50 mA of current.

Regarding claims 25 & 28, Nagayama discloses that the material of the one surface layer is a two-component alloy (paragraph 9).

Regarding claims 34, 37 & 40, Nagayama discloses that the Mo alloy is a two component system including Mo and W (paragraph 9).

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Claims 7,8, 19-20, 33, 35-36, 38-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagayama, and Iyama as applied to claims 1-4, 11, & 30, in view of Codama et al. (U.S. 6,114,805).

Regarding claims 7 & 19, Nagayama teaches all of the limitations of claim 7, but fails to teach that the Mo alloy contains Nb.

Codama et al. in the analogous art teaches wherein the Mo alloy contains Nb (col. 8 lines 39-47; col. 8 line 30). Additionally, Codama et al. teaches incorporation of such a Mo alloy contains Nb, where content of Nb in the alloy is about 10 at % alloy to improve the thin film resistance of interconnection electrode (col. 8, lines 30-50) and provide a working interconnection electrode.

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use wherein the Mo alloy contains Nb in the auxiliary electrode of Hosokawa, since such a modification would improve the thin film resistance of interconnection electrode and provide a working interconnection electrode as taught by Codama et al.

Regarding claims 8 & 20, Codama discloses wherein the content of Nb in the Mo alloy is 5 to 20 at %. This claim is rejected for the same reasons found in claim 7.

Regarding claims 33, 35, 36, 38 and 39, Nagayama and Iyama teach all the limitations of claims 33, 35, 36, 38-39, except for the claimed range of thickness of Mo alloy layer and the Al or Al alloy layer.

However, Codama specifically teaches that the protective layers in the interconnections should have thickness in the range of 100-500 nm in order to have optimum protection (lines 50-67 of column 8).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have layers in the range of 100-500nm as taught by Codama in the combined structure of Nagayama & Iyama since such range of thickness of protecting layers will provide optimum protection.

Response to Arguments

Applicant's arguments filed 3/26/07 have been fully considered but they are not persuasive.

First of all applicant stated in Remark that "office action conceded that Nagayama does not teach or suggest a supplemental wire that includes a layer containing Mo alloy".

Examiner respectfully differs, since previous office action stated that Nagayama teach that supplemental layer contains Mo but does not teach the remainder or other layer having different composition.

Previous office action is based on the claim 1 where applicant claimed Pure Mo layer or Mo alloy layer.

However, Nagayama specifically teaches that the interconnection or supplemental wire (11) can be made of Alloy having Mo or W (see paragraph 9).

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Applicant is right that the lyama does not indicate Mo alloy, however, lyama reference is combined for the teaching of having Al-alloy layer under the Mo layer or having three layers in the interconnection wirings.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karabi Guharay whose telephone number is 571-272-2452. The examiner can normally be reached on Monday-Friday 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on 571-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

K. Guharay
Karabi Guharay
Primary Examiner
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7/11/07